

Appl. No. : 09/315,292
Filed : May 20, 1999

AMENDMENTS TO THE CLAIMS

1-65. (Canceled)

66. (Currently Amended) A method for administering an oligonucleotide into a lung of a mammal, said method comprises:

aerosolizing the oligonucleotide wherein the aerosol particles have a size of about 1 to about 5 microns; and

introducing the aerosolized oligonucleotide into the lung of the mammal, wherein said oligonucleotide comprises a ~~first region~~ 20 nucleobase portion having a gap segment, a first wing segment and second wing segment, said gap segment consisting of ten contiguous 2'-deoxy nucleosides flanked by second and third wing regions, each of said second and third wing regions on its 5' and 3' ends by said first and second wing segments, each of said first and second wing segments independently consisting of five 2'-O-methoxyethyl nucleosides, and the oligonucleotide is taken up by at least one cell type in the lung of the mammal.

67-69. (Cancelled)

70. (Previously Presented) The method of claim 66 wherein at least one internucleotide linkage within said oligonucleotide is a phosphorothioate linkage.

71. (Previously Presented) The method of claim 66 wherein at least one internucleotide linkage within said oligonucleotide is a 3'-methylenephosphonate, a non-phosphorous containing oligonucleotide linkage, a 2'-5' linkage or is a 3'-deoxy-3'-amino phosphoramidate linkage.

72. (Previously Presented) The method of claim 66 wherein said oligonucleotide is in an aqueous media.

73. (Previously Presented) The method of claim 66 wherein said oligonucleotide is in a sterilized, pyrogen free water.

74. (Previously Presented) The method of claim 66 wherein said oligonucleotide is in a saline solution.

75. (Previously Presented) The method of claim 66 wherein said oligonucleotide is in a powder.

76.-77. (Canceled)

78. (Currently Amended) A method for increasing uptake into lung cells of a phosphorothioate containing oligonucleotide delivered by pulmonary administration into lung cells comprising incorporation of a 2'-O-methoxyethyl modification into the oligonucleotide, wherein said oligonucleotide comprises a first region 20 nucleobase portion having a gap segment, a first wing segment and second wing segment, said gap segment consisting of ten contiguous 2'-deoxy nucleosides flanked by second and third wing regions, each of said second and third wing regions on its 5' and 3' ends by said first and second wing segments, each of said first and second wing segments independently consisting of five 2'-O-methoxyethyl nucleosides.

79. (Previously Presented) The method of claim 78 wherein said oligonucleotide is in an aqueous media.

80. (Previously Presented) The method of claim 78 wherein said oligonucleotide is in a sterilized, pyrogen free water.

81. (Previously Presented) The method of claim 78 wherein said oligonucleotide is in a saline solution.

82. (Previously Presented) The method of claim 78 wherein said oligonucleotide is in a powder.

83. (New) The method of claim 66, wherein each internucleotide linkage within said oligonucleotide is a phosphorothioate linkage.

84. (New) The method of claim 66, wherein each cytosine is a 5-methylcytosine.

85. (New) The method of claim 66, wherein said oligonucleotide is 20 nucleobases long, wherein each internucleotide linkage within said oligonucleotide is a phosphorothioate linkage, and wherein each cytosine is a 5-methylcytosine.

86. (New) The method of claim 78, wherein each internucleotide linkage within said oligonucleotide is a phosphorothioate linkage.

87. (New) The method of claim 78, wherein each cytosine is a 5-methylcytosine.

88. (New) The method of claim 78, wherein said oligonucleotide is 20 nucleobases long, wherein each internucleotide linkage within said oligonucleotide is a phosphorothioate linkage, and wherein each cytosine is a 5-methylcytosine.

89. (New) A method for administering an oligonucleotide into a lung of a mammal, said method comprises:

aerosolizing the oligonucleotide wherein the aerosol particles have a size of about 1 to about 5 microns; and

introducing the aerosolized oligonucleotide into the lung of the mammal, wherein said oligonucleotide comprises a 20 nucleobase portion having a gap segment, a first wing segment and second wing segment, said gap segment consisting of twelve contiguous 2'-deoxy nucleosides flanked on its 5' and 3' ends by said first and second wing segments, each of said first and second wing segments independently consisting of four 2'-O-methoxyethyl nucleosides, and the oligonucleotide is taken up by at least one cell type in the lung of the mammal.

90. (New) The method of claim 89 wherein at least one internucleotide linkage within said oligonucleotide is a phosphorothioate linkage.

91. (New) The method of claim 89 wherein at least one internucleotide linkage within said oligonucleotide is a 3'-methylenephosphonate, a non-phosphorous containing oligonucleotide linkage, a 2'-5' linkage or is a 3'-deoxy-3'-amino phosphoramidate linkage.

92. (New) The method of claim 89 wherein said oligonucleotide is in an aqueous media

93. (New) The method of claim 89 wherein said oligonucleotide is in a sterilized, pyrogen free water.

94. (New) The method of claim 89 wherein said oligonucleotide is in a saline solution.

95. (New) The method of claim 89 wherein said oligonucleotide is in a powder.

96. (New) The method of claim 89 , wherein each internucleotide linkage within said oligonucleotide is a phosphorothioate linkage.

97. (New) The method of claim 89 , wherein each cytosine is a 5-methylcytosine.

98. (New) The method of claim 89, wherein said oligonucleotide is 20 nucleobases long, wherein each internucleotide linkage within said oligonucleotide is a phosphorothioate linkage, and wherein each cytosine is a 5-methylcytosine.